ON THE SUBCENTRAL AUTOMORPHISMS OF FINITE GROUPS

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Abstract. Let G be a group and let M be a characteristic subgroup of G. We denote by $\operatorname{Aut}_M^M(G)$ the set of all automorphisms of G which centralize G/M and M. In this paper, we give necessary and sufficient conditions for the equality of $\operatorname{Aut}_M^M(G)$ with $\operatorname{Aut}^M(G)$ and $C_{\operatorname{Aut}_M^M(G)}(Z(G))$.

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Key words. Characteristic subgroup, finite p-groups, Frattini subgroup, inner automorphism, subcentral automorphism.

REFERENCES

- J.E. Adney and T. Yen, Automorphisms of a p-group, Illinois J. Math., 9 (1965), 137– 143.
- [2] Z. Azhdari and M. Akhavan-Malayeri, On automorphisms fixing certain groups, J. Algebra Appl., 12 (2013), 1250163-1–17.
- [3] R.D. Carmichael, Groups of finite order, Dover Publications, New York, 1965.
- [4] M.J. Curran and D.J. McCaughan, Central automorphisms that are almost inner, Comm. Algebra, 29 (2001), 2081–2087.
- [5] M.J. Curran and D.J. McCaughan, Finite groups with central automorphism group of minimal order, Math. Proc. R. Ir. Acad., 104A (2004), 223–229.
- [6] R.G. Ghumde and S.H. Ghate, Group of automorphisms preserving cosets of a central charactristic subgroup and related results, Acta Math. Univ. Comenian., 2 (2016), 181– 189.
- [7] Z. Kaboutari Farimani and M.M. Nasrabadi, On absolute central automorphisms fixing the center elementwise, J. Algebr. Syst., 2 (2016), 127–131.
- [8] M. Shabani Attar, Finite p-groups in which each central automorphism fixes centre elementwise, Comm. Algebra, 40 (2012), 1096–1102.

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